

## Adderall And Cirrhosis Of The Liver - Overview of medication adjustments for adult patients with cirrhosis

By University College London (UCL) December 27, 2023. Recent research indicates that drinking patterns, genetic factors, and type-2 diabetes play a crucial role in the risk of developing alcohol-related cirrhosis. The study emphasizes the significance of how and when alcohol is consumed, rather than the total amount, in determining liver .



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## Drug Considerations for Medication Therapy in Cirrhosis

**Table 2**

Summary of Drug Adjustments in Cirrhosis		
Therapeutic Category	Safe	Avoid
Acid-suppressing agents	Esomeprazole <sup>a</sup> Famotidine	Lansoprazole Omeprazole <sup>a</sup> Pantoprazole Rabeprazole Cimetidine
Analgesics		Acetaminophen <sup>a</sup> COX-2 inhibitors <sup>a</sup> NSAIDs
Antibiotics	Amoxicillin Amoxicillin/ clavulanic acid Ciprofloxacin Rifaximin	Azithromycin Erythromycin
Antidiabetic drugs	Insulin Glucagon-like peptide-1 agonists Sulfonylureas <sup>a</sup> Dipeptidyl peptidase-4 SGLT-2 inhibitors	Metformin Pioglitazone
Antihypertensives	Calcium channel blockers <sup>a</sup>	ACE inhibitors ARBs Verapamil <sup>a</sup>
Diuretics	Furosemide Spironolactone Hydrochlorothiazide	
Lipid-lowering agents	Cholestyramine	Statins <sup>a</sup>

<sup>a</sup> Dose adjustment necessary.  
 ACE: angiotensin-converting enzyme; ARB: angiotensin-receptor blocker; COX: cyclooxygenase; NSAID: nonsteroidal anti-inflammatory drug; SGLT-2: sodium-glucose-linked transporter-2.  
 Source: References 27, 29.

Hepatic Encephalopathy is a brain disorder that develops in some individuals with liver disease. Approximately 70% of individuals with cirrhosis may develop symptoms of Hepatic Encephalopathy. In some cases, Hepatic Encephalopathy is a short-term problem that can be corrected. It may also occur as part of a chronic problem from liver disease .

# Adderall Induced Acute Liver Injury: A Rare Case and Review of the .

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## Case Report

### Adderall Induced Acute Liver Injury: A Rare Case and Review of the Literature

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Adderall (dextroamphetamine/amphetamine) is a widely prescribed medicine for the treatment of attention-deficit/hyperactivity disorder (ADHD) and is considered safe with due precautions. Use of prescribed Adderall without intention to overdose as a cause of acute liver injury is extremely rare, and to our knowledge no cases have been reported in the English literature. Amphetamine is an ingredient of recreational drugs such as Ecstasy and is known to cause hepatotoxicity. We describe here the case of a 55-year-old woman who developed acute liver failure during the treatment of ADHD with Adderall. She presented to the emergency room with worsening abdominal pain, malaise, and jaundice requiring hospitalization. She had a past history of partial hepatic resection secondary to metastasis from colon cancer which was under remission at the time of presentation. She recovered after intensive monitoring and conservative management. Adderall should be used carefully in individuals with underlying liver conditions.

#### 1. Introduction

Acute hepatitis can result from wide variety of causes, among which viral and toxin induced injuries are the most common. Toxin induced liver injury contributes to 30% of acute liver injury [1]. Acetaminophen overdose is the most common cause of acute liver failure accounting for 39% of cases in United States [2]. Amphetamines and their derivatives are among the rarest causes of idiosyncratic drug reactions which are the presumptive cause in 13% of cases overall [2]. Amphetamine and Ecstasy (MDMA) remain popular recreational drugs in the western world but less common in United States. In Spain it is the second most common cause of acute hepatitis in patients under the age of 25 years, with viral hepatitis as the commonest cause [3]. Presentation can vary from subclinical elevation of liver enzymes to fulminant hepatic failure demanding orthotopic liver transplant [4]. It is extremely rare to develop liver toxicity at prescribed doses. To our knowledge, only one case has been reported in United States in a 14-year-old boy [5]. We report here the first case of Adderall induced acute liver injury in a 55-year-old female.

Approval from Institutional Review Board was obtained for case report submission.

#### 2. Case Report

A 55-year-old female presented to Washington Hospital Center with three days history of malaise, anorexia, nausea, vomiting, jaundice, intense pruritus, and upper abdominal pain. She denied fever, chills, weight loss, and diarrhea. She also denied alcohol abuse, illicit drug use, and use of herbal supplementation. Her past medical history consisted of hypertension, hypothyroidism, Roux-En-Y Gastric bypass, ADHD, and colorectal cancer. Patient was diagnosed with stage IV (T3, M1, N1) malignant neoplasms of the ascending colon in 2002 for which she underwent right hemicolectomy. She had a partial hepatic resection (segments 4 and 7) in 2005 secondary to liver metastasis from colon cancer. Her colon cancer was in remission at the time of presentation. She has been on Adderall 30 mg twice a day for about eleven months. Patient took twice the recommended dose by herself (due to worsening of ADHD) for 5 days before she presented to

In parallel, an overview of hepatic oxidative stress, inflammation, and steatosis underlying DILI is provided, followed by extensive review and discussion of the pathophysiology of AD- and AP-induced DILI revealed in case reports, and animal and in vitro studies.

## Cirrhosis - Symptoms and causes - Mayo Clinic



Liver doctors and patient advocates had long pointed out how outdated the name was: non-alcoholic fatty liver disease. . In 2015, the name of another liver condition, primary biliary cirrhosis, .

## My liver enzymes are elevated — Now what? - Mayo Clinic Press



Acetaminophen or Tylenol® is the best known medication that can damage the liver. This medication is widely available without prescription and is present in many of the cold and flu remedies as well as in prescribed pain medications. Most pain medications that are labeled as "non-aspirin" have acetaminophen as its main ingredient.

## Cirrhosis - Diagnosis and treatment - Mayo Clinic



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1. Introduction Acute hepatitis can result from wide variety of causes, among which viral and toxin induced injuries are the most common. Toxin induced liver injury contributes to 30% of acute liver injury [ 1 ]. Acetaminophen overdose is the most common cause of acute liver failure accounting for 39% of cases in United States [ 2 ].

## Signs and Symptoms of Liver Disease



Causes Risk factors Diagnosis Treatment Prevention Summary More than 1,000 different drugs can cause liver damage. This occurs in a process called drug-induced liver injury (DILI). This can.

### Liver disease: Binge drinking raises risk more than overall intake



Paracetamol (acetaminophen) can be used safely at low doses ( $\leq 2-3$  g daily) for short durations and should be considered first-line treatment for pain. Statins can be used safely; they are considered by the FDA to carry a very low risk for serious liver injury, and recent studies support their safety in liver disease and suggest a possible .

## Which drugs cause liver damage? - Medical News Today



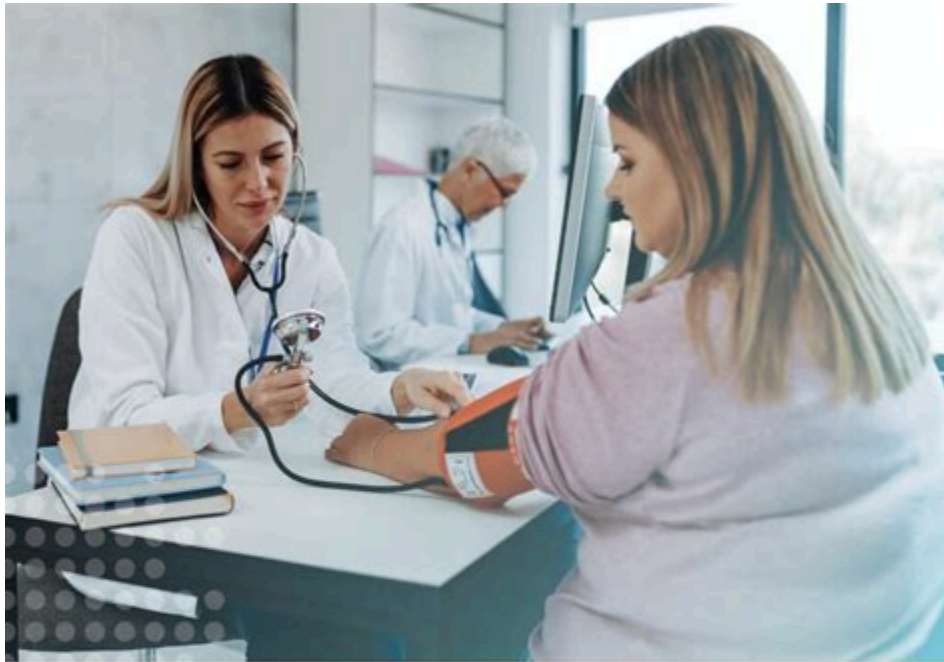
Stage 1 means there is mild scarring. Stage 2 means there is moderate scarring. Stage 3 means there is advanced scarring. Stage 4 is advanced liver disease, known as cirrhosis.

## 10 Medications That May Cause Liver Damage - GoodRx



Researchers said that liver disease is among the leading causes of premature death globally with an estimated 2% to 3% of the world's population having cirrhosis (scarring of the liver) or liver .

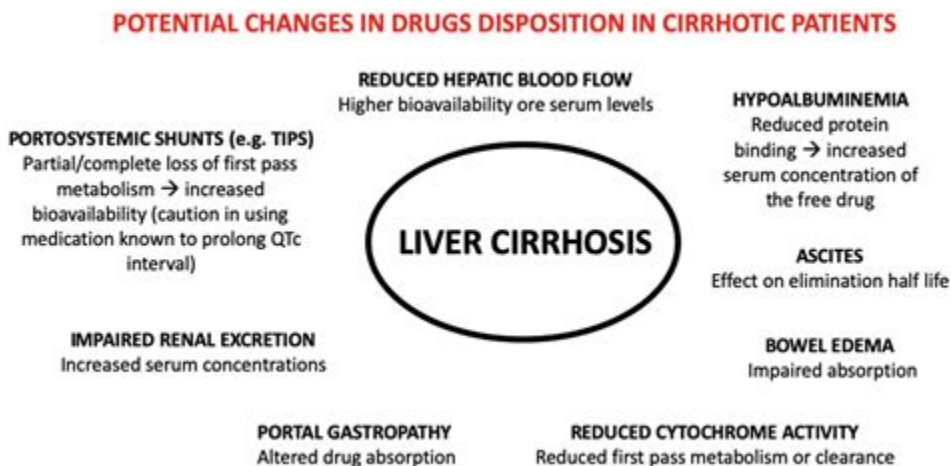
## Why liver experts renamed NASH to MASH, and NAFLD to MASLD - STAT



### The Latest in Fatty Liver Disease and NASH Research: Promising Advances in Treatment

Most prevalent cases of cirrhosis are caused by alcohol use disorder (approximately 45% of all cirrhosis cases), hepatitis C (41%), and nonalcoholic fatty liver disease (26%), with many patients having overlapping causes. 4 However, hepatitis C is now curable with direct-acting antivirals and most newly diagnosed cirrhosis is due to .

### Antibiotics and Liver Cirrhosis: What the Physicians Need to Know



Liver cirrhosis is severe scarring that involves permanent damage to the liver. No medications can specifically treat liver disease, but acetaminophen (Tylenol) and other options can help.

## Hepatic Encephalopathy - American Liver Foundation



Long-term use of Adderall could lead to addiction, heart problems, slowed growth in children, or mental health issues. Attention deficit-hyperactivity disorder (ADHD) is one of the most common childhood medical conditions. It also affects 3% to 6% of adults. Prescription stimulants, like Adderall (mixed amphetamine salts), are used to treat ADHD.

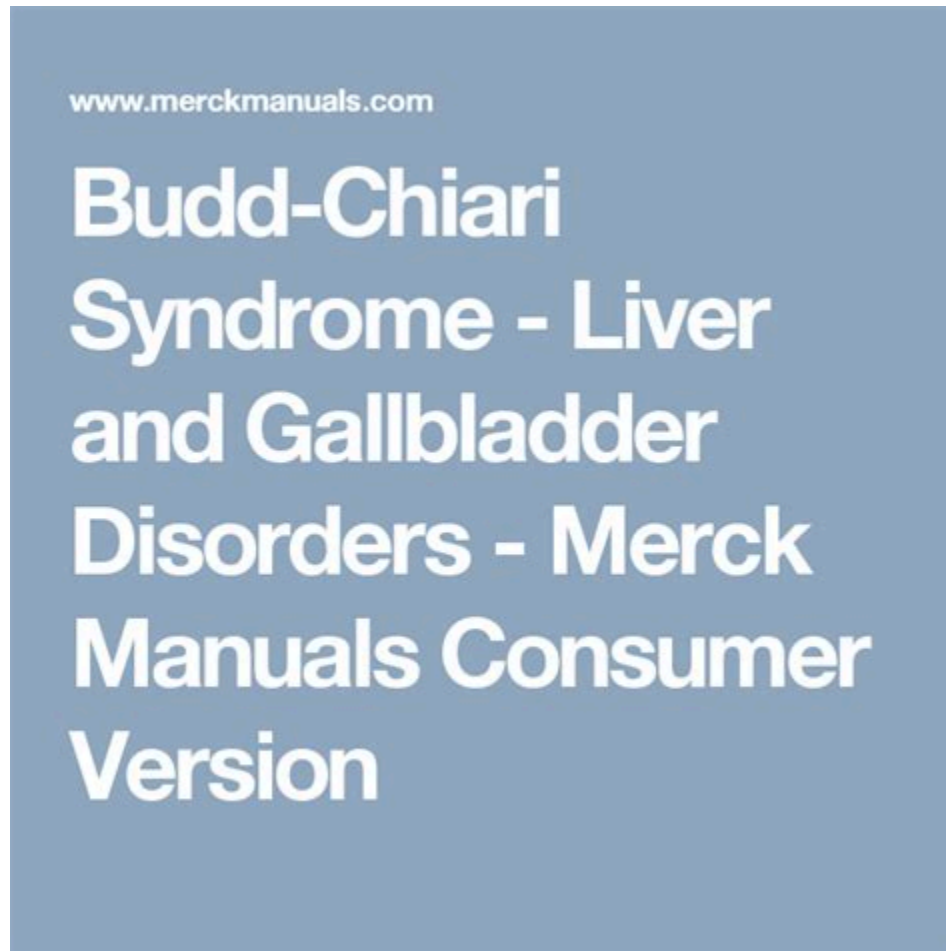
## Which Drugs Are Safe in Patients with Cirrhosis? - NEJM Journal Watch

Drug	Comment
Ursodeoxycholic acid (ursodiol)	Only drug approved by the Food and Drug Administration for treatment of primary biliary cirrhosis; dose, 12–15 mg per kilogram of body weight daily; decreases serum levels of bilirubin, cholesterol, IgM, and liver enzymes; prolongs survival without liver transplantation; delays progression of liver fibrosis and development of portal hypertension
Colchicine	Used in patients who have an incomplete response to ursodiol; dose, 0.6 mg twice daily; lowers serum levels of liver enzymes and may improve survival; efficacy not proven in double-blind trials
Methotrexate	Used in patients who have an incomplete response to ursodiol and colchicine; dose, 0.25 mg per kilogram per week, orally; lowers serum levels of liver enzymes, cholesterol, and IgM and improves liver histologic findings; efficacy not proven in double-blind trials
Prednisone	Limited, if any, efficacy; worsens osteoporosis
Budesonide	Dose, 6 mg daily; improves liver histology and results of biochemical tests of liver function when used with ursodiol; no data on effects on survival
Cyclosporine	Limited efficacy; many side effects
Azathioprine, mycophenolate	Limited efficacy
Penicillamine	No efficacy; serious toxic effects
Chlorambucil	Some efficacy but serious side effects
Thalidomide, malotilate	No efficacy in small, controlled trials
Silymarin	No efficacy in pilot study; active ingredient in milk thistle; widely available in health food stores and used by many patients
Sulindac, bezafibrate, tamoxifen	Limited data available; may lower serum levels of liver enzymes

In the United States, cirrhosis affects about 1.8% of the adult population. Cirrhosis is the leading

cause of liver-related deaths. 1,2 Risk factors for the development of cirrhosis include hypertension, hyperlipidemia, diabetes, obesity, moderate alcohol consumption, chronic hepatitis B or C, male sex, and age above 50 years. 2-4

## **Liver and Gallbladder Disorders - The Merck Manuals**



Cirrhosis patients have poor health-related quality of life (HRQoL). To enhance medical care and therapeutic approaches, it is crucial to identify factors that alter HRQoL in patients with cirrhosis. The present study aims to identify the potential factors affecting and promoting HRQoL in patients with liver cirrhosis.

## What Are the Long-Term Effects of Adderall Use? - GoodRx

**a**ddiction**blog.org**  
"a" is for addiction

Studies have shown that abuse of Adderall can permanently alter normal brain activities and damage the brain. Adverse side effects of Adderall on the brain include disturbances of mood and behavior, insomnia, emotional lability and many others. More here.

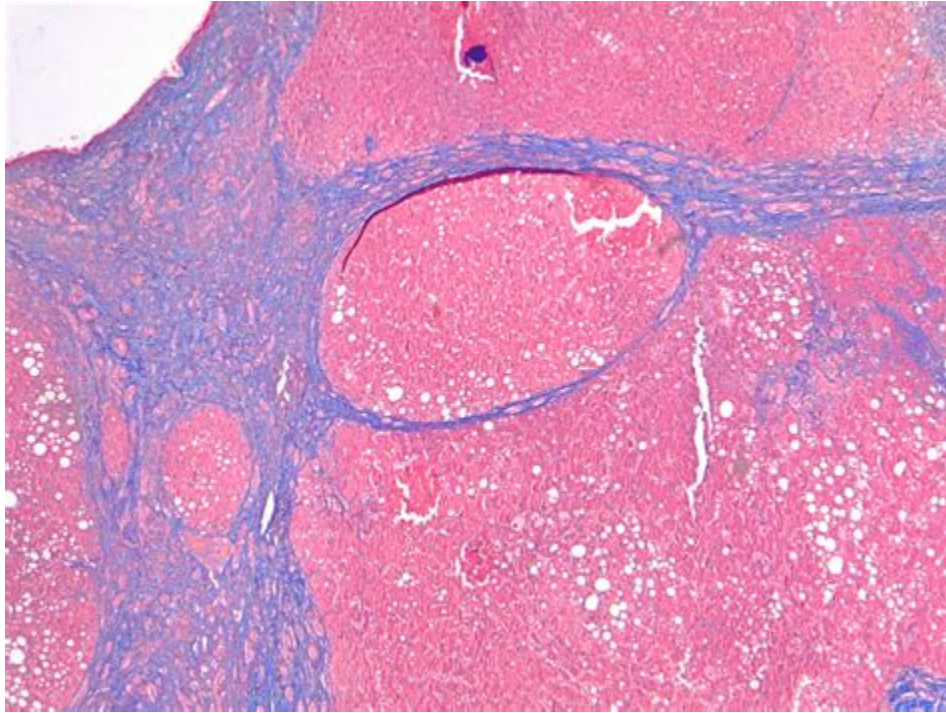
# ADVERSE EFFECTS OF ADDERALL ON THE BRAIN

**VIOLENT BEHAVIOR NIGHTMARES**  
**DYSPHORIA COMA FATIGUE**  
**MANIA IRRITABILITY**  
**PSYCHOSIS IMPAIRED THINKING**  
**EMOTIONAL INSTABILITY**  
**ADDICTION**  
**DEPRESSION**  
**HALLUCINATIONS**  
**LACK OF COORDINATION**  
**INSOMNIA DELUSIONS**  
**MOTOR AND VERBAL TICS AGGRESSION AND HOSTILITY**  
**STROKE EMOTIONAL AND MENTAL DISCOMFORT**  
**MOOD SWINGS DAMAGED NERVE CELLS IMPAIRED SPEECH**

**a**ddiction**blog.org** +Addiction Blog Addiction-Blog addictionblog AddictionBlog

1. Tylenol Tylenol ( acetaminophen) is a common over-the-counter (OTC) pain reliever and fever reducer. It's not toxic to the liver when it's taken occasionally and within recommended dosages. However, large doses and/or chronic use can cause liver damage.

## Hepatic Cirrhosis - StatPearls - NCBI Bookshelf



Overview As liver damage in cirrhosis builds up, your liver function declines. What is cirrhosis of the liver? Cirrhosis of the liver is late stage liver disease, in which healthy liver tissue has been gradually replaced with scar tissue. This is a result of long-term, chronic hepatitis.

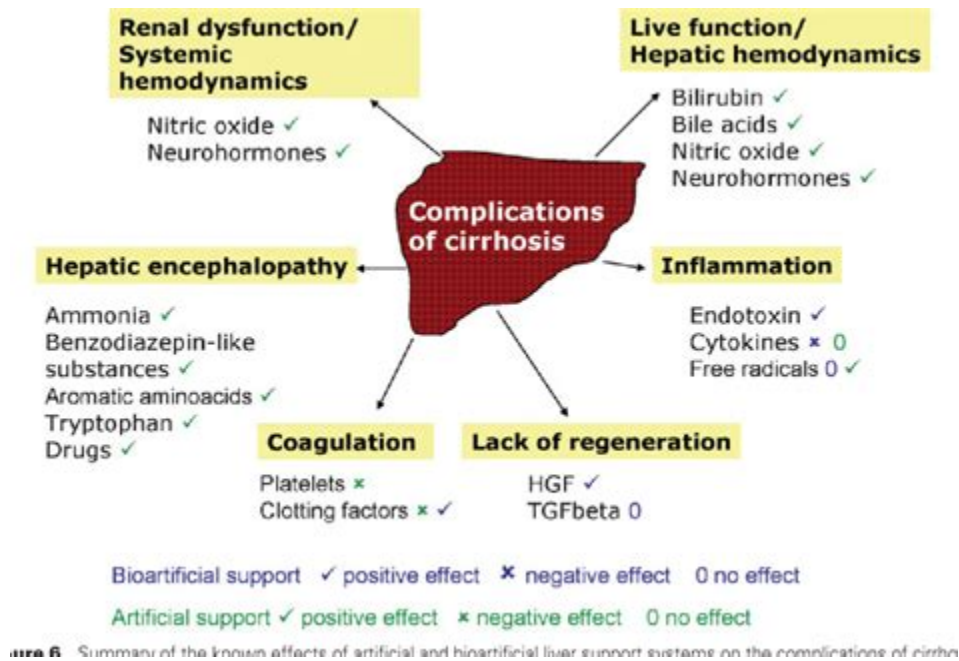
### Rethinking Cirrhosis Risk: Drinking Patterns Trump Volume in Liver Health



Statins are not, however, prescribed, or are prescribed at lower doses, for many people who have decompensated cirrhosis (an advanced stage of cirrhosis in which the liver can no longer function

properly).

## Diagnosis and Management of Cirrhosis and Its Complications



Hepatitis, fatty liver disease, cirrhosis, and liver cancer are example of some conditions that can affect your liver. If a healthcare provider suspects you have a liver problem, there are a .

## Factors Affecting and Promoting Health-related Quality of Life in .



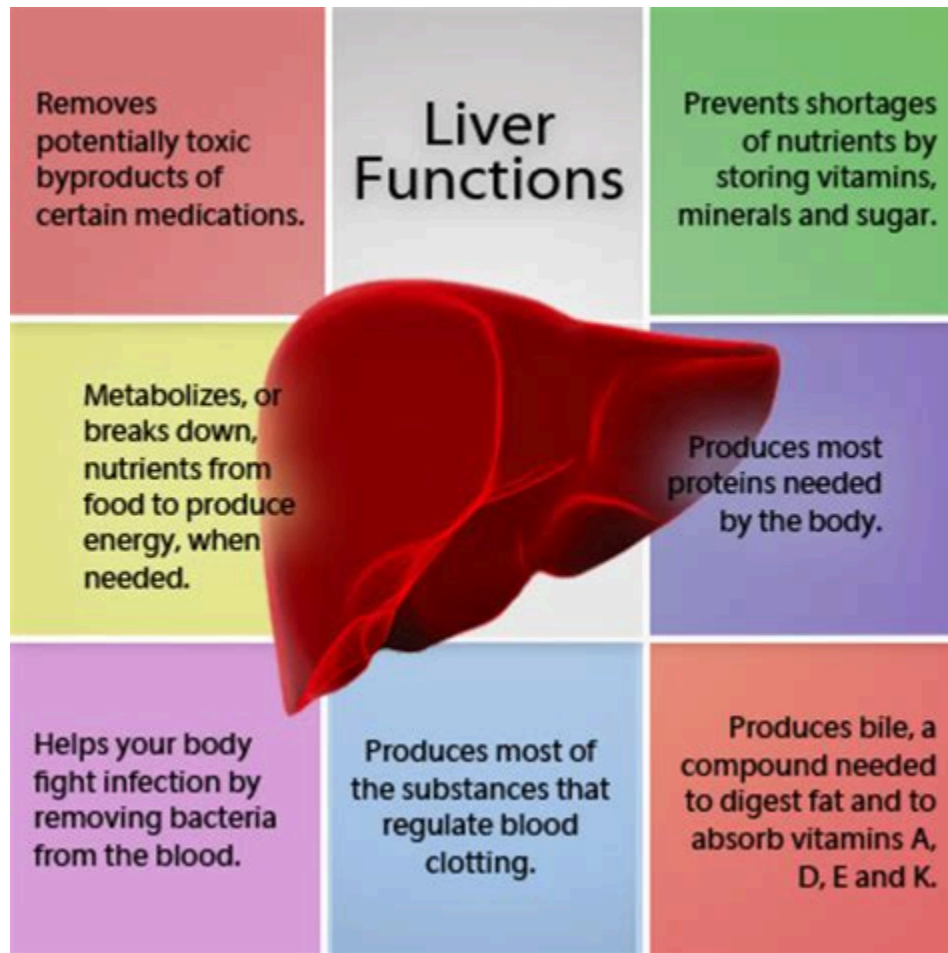
Cirrhosis is characterized by fibrosis and nodule formation of the liver secondary to chronic injury, leading to alteration of the normal lobular organization of the liver. Various insults can injure the liver, including viral infections, toxins, hereditary conditions, or autoimmune processes.

## Cirrhosis of the Liver: Signs & Symptoms, Causes, Stages - Cleveland Clinic



The liver is the second largest organ in the human body and one of the most important for human health. Cirrhosis is a progressive condition that puts both a person's liver and life at risk.

## Liver: Location, Function, and Associated Diseases - Health



In liver cirrhosis, impaired drug disposition is due to many pathological changes, including liver cell necrosis, portosystemic shunt, reduction in the concentration of drug-binding proteins, atypical drug volume of distribution, altered drug metabolism and elimination, altered pharmacodynamics, drug interactions, and the frequent association wi.

## Drug-Induced Liver Disease Types, Causes, Symptoms & Treatment



Statins include the medications simvastatin, atorvastatin, pravastatin and lovastatin. Statins rarely cause liver damage, and doctors no longer check liver enzymes for people on statins routinely. Other common medications that may cause elevated liver enzymes include: Abused drugs such as alcohol, cocaine and anabolic steroids.

# Antidepressants- and antipsychotics-induced hepatotoxicity



## ANTIDEPRESSANT TYPES

There are several types of antidepressants (also known as antidepressant classes). Antidepressants are grouped into types based on how they work in the brain. Types of antidepressants include:

<b>Tricyclic antidepressants (TCAs)</b>	This is an older class of antidepressant. While TCAs are effective for some, they are less-commonly prescribed due to an adverse side effect profile. Examples of tricyclic antidepressants include:	<ul style="list-style-type: none"> <li>○ Anafranil (Clomipramine)</li> <li>○ Aventyl (Nortriptyline)</li> </ul>
<b>Monoamine oxidase inhibitors (MAOIs)</b>	This is also an older class of antidepressant. As with TCAs, MAOIs may be effective for some but are less-commonly prescribed due to their side effects and also the likelihood that a special diet will need to be followed while taking the medication. Examples of MAOIs include:	<ul style="list-style-type: none"> <li>○ Emsam (Selegiline)</li> <li>○ Nardil (Phenelzine)</li> <li>○ Parnate (Tranlycypromine)</li> </ul>
<b>Selective serotonin reuptake inhibitors (SSRIs)</b>	This type of antidepressant is one of the most-prescribed due to its effectiveness relative to its side effects. Commonly prescribed SSRIs include:	<ul style="list-style-type: none"> <li>○ Celexa (Citalopram)</li> <li>○ Paxil (Paroxetine)</li> <li>○ Prozac (Fluoxetine)</li> <li>○ Zoloft (Sertraline)</li> </ul>
<b>Serotonin norepinephrine reuptake inhibitors (SNRIs)</b>	This type of antidepressant has shown usefulness but some find withdrawal from it difficult. Available SNRIs include:	<ul style="list-style-type: none"> <li>○ Cymbalta (Duloxetine)</li> <li>○ Effexor (Venlafaxine)</li> <li>○ Pristiq (Desvenlafaxine)</li> </ul>
<b>Atypical antidepressants</b>	There are a few antidepressants that don't fall into one of the above classes and they are simply known as "atypical." Atypical antidepressants include:	<ul style="list-style-type: none"> <li>○ Remeron (Mirtazapine)</li> <li>○ Wellbutrin (Bupropion)</li> </ul>

Swelling in your ankles, lower feet, or lower legs. Internal bleeding due to the bursting of large veins in your liver. Ascites, or fluid build-up in your abdomen. Dark urine. Bruising or bleeding .

## What medications cause liver enzymes to be elevated? - Drugs

<b>Antihypertensive</b> Lisinopril Losartan (Cozaar)	<b>Psychiatric</b> Bupropion (Wellbutrin) Risperidone (Risperdal) Selective serotonin reuptake inhibitors Trazodone Valproic acid (Depakene)
<b>Antimicrobial</b> Ciprofloxacin Isoniazid Ketoconazole Pyrazinamide Rifampin Tetracycline	<b>Other</b> Acarbose (Precose) Amiodarone Baclofen Herbal and dietary supplements Highly active antiretroviral therapy Omeprazole (Prilosec)
<b>Chemotherapeutics</b> Imatinib (Gleevec) Methotrexate	
<b>Pain relievers/anti-inflammatory</b> Acetaminophen Allopurinol Aspirin Nonsteroidal anti-inflammatory drugs	

*Information from references 25 and 28.*

That indicates chronic liver failure consistent with early cirrhosis. I may have two or three drinks a year, so it isn't due to alcohol abuse. . However, there is a case report of a 55-year-old woman who developed acute liver injury as a result of taking Adderall at the prescribed dose .

## What are medications for liver cirrhosis? - Medical News Today

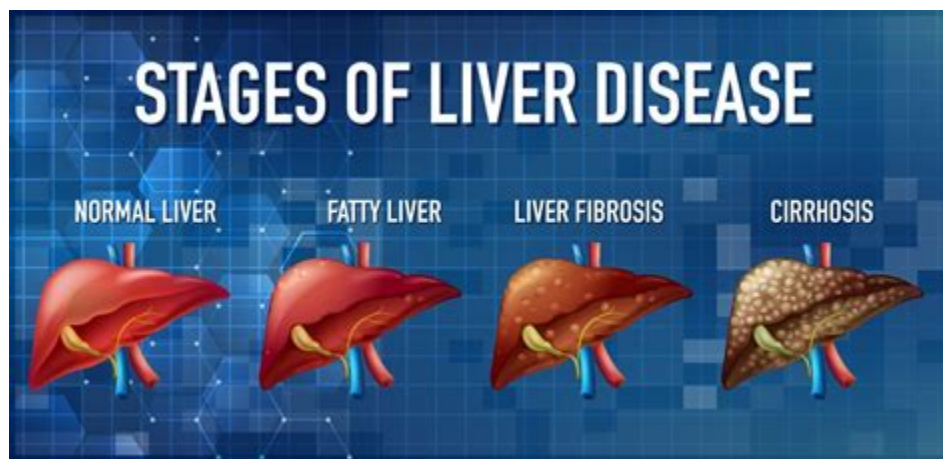
**Table 1. Medications Commonly Used to Treat Cirrhosis Complications**

Complication/Use	Medication	Dosage
PHT related to variceal bleeding in patients with esophageal varices <sup>a</sup>	Sandostatin (octreotide)	IV: 25 mcg/h for 48 h
PHT and prevention of variceal bleeding <sup>a</sup>	Inderal (propranolol)	po: 10 mg bid; increase to max tolerated dosage
PHT and prevention of variceal bleeding <sup>a</sup>	Corgard (nadolol)	po: 40 mg/day; increase as tolerated to 240 mg/day
Bacterial infection prophylaxis in patients with cirrhosis and GI bleeding <sup>a</sup>	Noroxin (norfloxacin)	Primary prophylaxis <sup>a</sup> —po: 400 mg/day. Variceal hemorrhage <sup>a</sup> —po: 400 mg bid; max 7 days
SBP treatment pursuant to variceal bleed <sup>a</sup>	Rocephin (ceftriaxone)	IV: 1 g/day; max 7 days
Bacterial infection prophylaxis in patients with cirrhosis and GI bleeding <sup>a</sup>	Cipro (ciprofloxacin)	IV: 400 mg bid; max 7 days
SBP prophylaxis <sup>a</sup>	Bactrim (SMX-TMP)	po: 1 DS tablet (800 mg/160 mg) daily for 5 consecutive days/wk
Hepatic encephalopathy	Enulose (lactulose)	po: 30-45 mL (20-30 g) 3-4 times/day. PR: 300 mL lactulose diluted in 700 mL water; use as retention enema for 30-60 min; may repeat q4h
Reducing risk of overt hepatic encephalopathy recurrence	Xifaxan (rifaximin)	po: 550 mg bid
Orthostatic hypotension	Proamatine (midodrine)	po: 10 mg tid
SBP treatment	Claforan (cefotaxime)	IV: 2 g q8h for 5-7 days
SBP treatment <sup>a</sup>	Albumin	IV: 1.5 g/kg ≤6 h of clinical suspicion of SBP; then 1 g/kg on day 3

*<sup>a</sup> Not an FDA-labeled indication.  
DS: double-strength; GI: gastrointestinal; max: maximum; min: minute; PHT: portal hypertension; PR: per rectum; SBP: spontaneous bacterial peritonitis; SMX-TMP: sulfamethoxazole-trimethoprim.  
Sources: References 2, 5, 7, 9, 12.*

Background The amphetamines (am fet' a means) are potent central nervous system (CNS) stimulants that are believed to act by causing release of norepinephrine at CNS nerve terminals promoting neurotransmission.

### Cirrhosis of the liver life expectancy: Stages, prognosis, and more



Cirrhosis of the liver refers to a disease in which normal liver cells are replaced by scar tissue caused by alcohol and viral hepatitis B and C. This disease leads to abnormalities in the liver's ability to handle toxins and blood flow, causing internal bleeding, kidney failure, mental confusion, coma, body fluid accumulation, and frequent .

## Warning: Adderall Led to Unexpected Liver Injury



Mayo Clinic Overview What is cirrhosis? A Mayo Clinic expert explains Learn more about cirrhosis from transplant hepatologist Sumera Ilyas, M. B. B. S. Mayo Clinic Explains Cirrhosis From an accredited US hospital Show transcript Healthy liver vs. liver cirrhosis Enlarge image Cirrhosis is severe scarring of the liver.

## Medications & Liver | ACG - American College of Gastroenterology



The liver is responsible for the selective uptake, concentration, metabolism, and excretion of most drugs. Both prescription and over-the-counter medications can cause hepatotoxicity through a variety of mechanisms. Measures such as drug dose adjustment can help prevent adverse drug reactions (eg, acute kidney injury) in patients with cirrhosis.

### Amphetamines - LiverTox - NCBI Bookshelf



Mayo Clinic Diagnosis Cirrhosis FAQs Transplant hepatologist Sumera Ilyas, M. B. B. S. answers the most frequently asked questions about cirrhosis. Ask Mayo Clinic: Cirrhosis From an accredited US hospital Show transcript Liver biopsy Enlarge image People with early-stage cirrhosis of the liver usually don't have symptoms.

- <https://publiclab.org/notes/print/43452>
- <https://publiclab.org/notes/print/46445>
- <https://publiclab.org/notes/print/46824>